THE

ONTARIO WATER RESOURCES

COMMISSION

REPORT ON

WATER POLLUTION SURVEY

TOWN OF OAKVILLE

JUNE 1963

REPORT ON

WATER POLLUTION SURVEY

TOWN OF OAKVILLE

BY

ONTARIO WATER RESOURCES COMMISSION

JUNE 1963

Prepared by:

The Division of Sanitary Engineering

INDEX

1. INTRODUCTION

This report results from a field survey of water pollution and stream sanitation in the Town of Oakville.

Investigations of water quality are conducted routinely and upon request by the Ontario Water Resources Commission as part of its program to locate all pollution sources in the province and to prevent further sources from developing.

When sources of pollution are found or reported, corrective steps are recommended, and the Commission expects that such measures will be taken by those concerned without undue delay. In difficult situations, the laboratory and research services of the OWRC are used to help find a remedy.

The Commission gratefully acknowledges the assistance of Mr. G.N. Brisco, P. Eng., Town Engineer, Oakville, and the staff of the Engineering Department in supplying plans and reviewing local problems relative to this report. The Commission also recognizes the co-operation of the Halton County Health Unit staff in this respect.

2. SUMMARY

During May and June, 1963, a study was made of the waters traversing and bordering the Town of Oakville in connection with a survey of pollution conditions of these waters. Industries with discharges to these waters were visited by the Commission's Industrial Waste Branch staff.

A brief description of the sewer outlets, including those from which no flow was emanating, and the analyses of the samples obtained from those that were discharging, together with samples from

the watercourses are tabulated in Tables 1-9 of this report.

During this survey 101 outlets were recorded and almost all of these were examined except a limited number that were submerged or otherwise concealed from view. Samples were collected from 66 of the outlets which had a dry weather flow.

The following is a list of the various types of outlets recorded and the number of those which were sampled.

	No. of Outlets	Number Sampled
Municipal sewer outlets	71	38
Watercourse and ditch outlets	19	17
Industrial sewer outlets	8	8
Private sewer outlets	3	3
Totals	101	66

An unusually high percentage of the storm sewer outlets had a dry weather flow indicative of ground-water infiltration and possibly surface water entry. In the majority of cases, the dry weather flows were of acceptable quality for discharge to a watercourse.

The Commission was pleased to find that the town officials were well aware of the problems associated with water pollution in the municipality and that they have been diligently striving to eliminate actual and potential sources of pollution. The municipality has been and is actively engaged in a program of sewer construction and in improving its water pollution control plant facilities.

The Ontario Water Resources Commission has received full co-operation from the municipal officials in its pollution abatement program.

While sources of pollution were found to exist, the municipality in practically every instance had plans prepared to eliminate these

sources.

A number of individual recommendations under the heading of "Comments" are made throughout this report. These recommendations are not being repeated under the following heading; nevertheless they should be studied carefully and treated as recommendations where applicable.

3. RECOMMENDATIONS

In addition to the recommendations made under the various "Comments", the following also resulted from this survey:

1. That the "Water Quality and Effluent Objectives" prescribed in this report under the heading of "Significance of Laboratory Results" be observed in the development of remedial and pollution-preventive measures now under way in Oakville. These objectives should apply to both existing and new sources of wastes.

2. That all sewer outfalls within Oakville be recorded by the municipality and sampled where a polluting discharge has been indicated or is suspected of discharging to the lake proper or contributing watercourses.

3. That the selection, construction and operation of sanitary landfill sites with possible drainage to local waters be performed in a manner to prevent these from discharging polluting material to the adjacent watercourses.

4. That the Town of Oakville advise the Ontario Water Resources Commission of any changes that are made affecting the sewer outlets, discharges and conditions referred to in this report.

4. GENERAL INFORMATION

The Town of Oakville as of January 1, 1962, included all of Trafalgar Township. It is situated in the south-east quarter of Halton County, midway between Toronto and Hamilton. Oakville is one of the two towns in Halton bounded on the south by Lake Ontario.

Oakville has a population of 44,268 and now covers 66,109 acres. While the area to the north of the Upper Middle Road remains primarily rural, the southern portion of the town has expanded industrially at a rapid rate during the post war years.

(1) Sanitary Sewered Areas

The developed portion of Oakville, roughly east of Bronte (12 Mile) Creek to the Eighth Line and south of the Queen Elizabeth Way to the lake front, is served with sanitary sewers.

Three subdivision areas north of the Queen Elizabeth Way bounded by Oakville (16 Mile) Creek, Upper Middle Road and the Ninth Line are also provided with sanitary sewers.

Domestic sewage from the remainder of the premises is generally disposed of by means of private septic tank systems.

The installation of private sewage disposal and plumbing systems are inspected by the Halton County Health Unit staff.

(2) Storm Sewer System

Storm sewers are provided for only portions of the developed sections of the town. The greater portion of the built-up areas, however, are still served with open ditches or a combination of ditches and storm sewers.

A report on storm water sewers for Oakville was prepared in 1961

by Philips and Roberts Limited Consulting Engineers. This report was based on a study of the storm drainage requirements for the former Town of Oakville and contains recommendations for the improvement of the several drainage areas. The municipal officials are presently using this report to guide their planning of storm sewers in Oakville.

(3) Sewer Use By-Law

The Town of Oakville passed a by-law (No. 1962-70) in August, 1962, regulating the use of public and private sewers and drains, private sewage disposal, the installation and connection of building sewers and the discharge of waters and wastes into the public sewer system.

This by-law resulted in by-laws 1956-95A of the Township of Trafalgar & 1571 in the former Town of Oakville being repealed, and an occasion has already arisen to make use of the new by-law.

(4) Water Supply

The developed sections of the municipality are supplied with water obtained from Lake Ontario. The water supply and treatment works with a designed capacity of 10.5 M.G.D. is situated at the foot of Kerr Street.

A second water works plant referred to as the Bronte Water Works is inoperative but still maintained for standby purposes.

5. PLAN OF OAKVILLE

A plan of the section of Oakville south of the Upper Middle Road showing the approximate locations of the sampling points and and sewer outlets is attached.

6. DRAINAGE

Drainage for the township lands, aside from the storm sewered areas, is provided by several watercourses penetrating inland from Lake Ontario.

The most prominent streams discharging to the section of the lake bordering Oakville commencing at the westerly extremity of the town are: 1) Sheldon Creek, 2) Bronte Creek, also known as 12 Mile Creek, 3) Palermo Creek, also known as 14 Mile Creek, 4) Oakville Creek, also known as 16 Mile Creek, 5) Morrison Creek and 6) Joshua's Creek. The mouth of Joshua's Creek is just beyond the easterly boundary line.

Descriptions of the outlets, including those from which no flow was emanating, and the analyses of the samples obtained from those that were discharging, together with samples from the watercourses and Lake Ontario are tabulated in subsequent Tables 1 - 9.

7. SEWAGE TREATMENT FACILITIES

Oakville possesses two separate sewage treatment plants referred to in this report as the Trafalgar and Navy Street Water Pollution Control Plants (WPCP).

There are also two private water pollution control plants operated independently and serving the Cities Service Refining (Canada) Limited and the Ford Motor Company of Canada.

Brief details of the two municipal plants are presented as follows:

(1) Trafalgar WPCP

Operated by: Town of Oakville
Design Flow: 2.5 mgd

Treatment: Screening - barminutor, grit removal, primary sedimentation, step aeration, final sedimentation, sludge digestion, effluent chlorination

Receiving Water: Lake Ontario

Actual Flow Data (1962):

Average Daily Flow	-	1,750,000 gallons
Maximum Daily Flow	-	4,410,000 gallons
Minimum Daily Flow	-	632,000 gallons

Final Effluent Results - (1962)

Average 5-Day BOD	- 12 ppm
Average Suspended Solids	- 13 ppm
No. of samples	- 12

(2) Navy Street WPCP

Operated by: Town of Oakville
Design Flow: .75 mgd
Treatment: Bar screening, aeration, sludge re-aeration, final sedimentation, unheated sludge digestion, effluent chlorination

Receiving Water: Oakville Creek

No flow records available.

Final Effluent Results - (1962)

Average 5-Day BOD	- 17 ppm
Average Suspended Solids	- 24 ppm
No. of Samples	- 5

Comments

The Trafalgar WPCP was producing a good effluent as shown by the results of the samples collected in 1962.

The BOD and suspended solids contents of the effluent released from the Navy Street Water Pollution Control Plant were slightly higher than the Commission's objective maximums. The recent appointment of a full-time operator at this plant, together with the purchase of new laboratory and chlorination equipment, is expected to improve the quality of the final effluent and raise it to an acceptable standard.

8. ANALYSES OF SAMPLES

The laboratory results of the samples collected from the waters traversing and bordering Oakville and from the various sewer outlets located within the municipality are presented in subsequent Tables 1 - 9.

(1) Significance of Laboratory Results

Reference may be made to the Appendix for a brief explanation of the most common analyses of sanitary significance, namely, biochemical oxygen demand (BOD), suspended solids, turbidity and the total coliform determination.

As an aid in interpreting the significance of the test results, the objective maximums for surface waters in Ontario are as follows:

5-Day B.O.D.: not greater than 4 ppm
M.F. Coliform Count: not greater than 2,400/100 ml.

Phenolic Equivalents:
Average: not greater than 2 ppb
Maximum: not greater than 5 ppb

pH Range: 6.7 - 8.5

Some maximum allowable concentrations of pertinent contaminants in storm sewer, sewage treatment plant and industrial waste effluents are listed below.

With the exception of certain specific instances influenced by local conditions, adequate safeguarding for surface water should be provided if the following effluent concentrations or ranges are not exceeded:

5-Day BOD: not greater than 15 ppm
Suspended Solids: not greater than 15 ppm

Phenolic Equivalents: not greater than 20 ppb

Ether Solubles (oil): not greater than 15 ppm

pH Range: 5.5 - 10.6

9. REFUSE DISPOSAL

Two sites in the town are used for the disposal of refuse. These are briefly described as follows.

(1) Oakville Creek Site

This sanitary landfill site is located in an ox-bow of Oakville Creek between the CNR tracks and the Queen Elizabeth Highway. While the operation of this dump is in keeping with good sanitary landfill practices, some leachate is reaching the creek from the periphery of a section of the site.

Comments

If the seepage continues, it will be necessary for the municipality to take steps to prevent the discharge of this material into the stream.

(2) Fourth Line Site

This site where the trench landfill method of refuse disposal is employed is located on the west side of the Fourth Line, approximately one mile north of Highway No. 5.

Refuse is dumped and combustible material is incinerated. The trench in use at present is adjacent to a slough area which contains water. The latter is tributary to Oakville Creek via a natural draw.

Comments

Although the wastes in the slough were not advancing to reach the creek at the time of the examination, there is a strong possibility of this occurring during rainstorms and during heavy surface run-offs.

Action is required to prevent this site from becoming a source of pollution.

10. OUTLETS TO BRONTE (12 MILE) CREEK

The laboratory results of the samples collected from Bronte Creek and from the outlets discharging thereto are presented in Table 1.

Total No. of outlets to Bronte Creek recorded - 7

No. of municipal sewer outlets - 7

No. of outlets sampled - 4

Comments

On the basis of the analyses of the samples collected to date, the quality of the dry weather discharges from the storm sewers was satisfactory and no critical points of contamination were revealed resulting from sampling the creek.

11. OUTLETS TO PALERMO (14 MILE) CREEK

The laboratory results of the samples collected from Palermo Creek and the sewer outlets connected thereto are contained in Table 2.

Total No. of outlets to Palermo Creek recorded - 9

No. of municipal sewer outlets - 8

No. of private sewer outlets - 1

No. of outlets sampled - 2

The analyses revealed normal conditions insofar as Palermo Creek was concerned.

12. OUTLET TO STREAM "A"

The discharge from the single outlet connected to this watercourse was insufficient for sampling at the time of the examination.

Comments

The analyses of the samples collected from this watercourse dur-

ing the past two years, as recorded in Table 3, indicate that it is satisfactory from a chemical and bacteriological standpoint.

13. OUTLET TO STREAM "B"

There is only one storm sewer connected to this watercourse, and it was reported to be of temporary nature.

Comments

The analyses of the samples collected from this watercourse and the one outlet connecting to it indicate no significant pollution as recorded in Table 4.

14. OUTLETS TO OAKVILLE (16 MILE) CREEK

The results of the analyses of the samples collected from Oakville Creek and the outlets connected to it are included in Table 5.

Total number of outlets to Oakville Creek recorded	- 26
Number of municipal sewer outlets	- 21
Number of industrial sewer outlets	- 3
Number of private sewer outlets	- 2
Number of outlets sampled	- 15

The sewers containing flows which produced adverse results are listed as follows.

(1) O-0.3 I - 15" Diameter Industrial Sewer - Sterling Faucet (Canada) Limited

This plant is located on the east side of Forsythe Street, south of Burnet Street and is engaged in the manufacture of tubular brass plumbing fixtures.

The water consumption averages 28,000 gpd, the major portion of which is used for plating.

Nickel, chrome and copper plating are carried out in this plant. All wastes from these operations are discharged to Oakville Creek. Depending on the operation being conducted, the rinses may contain significant concentrations of copper, nickel, chrome and cyanide ions.

Comments

The chrome concentration in the waste discharge was excessive, based on the analysis of a sample collected at the time of the survey.

The Industrial Waste Branch of the Commission plans to conduct a more thorough evaluation to establish the level of all contaminants in the wastes, and following this recommendations will be made concerning adequate treatment of the wastes.

(2) O-0.6 T - 18" Diameter Outfall Sewer - Navy Street Water Pollution Control Plant

The analyses of the samples collected at this plant indicate excessive concentrations of suspended solids being discharged into Oakville Creek.

Comments

Changes have been made in connection with the operation of this plant which are expected to improve the quality of the effluent. The changes are mentioned on page seven of this report.

(3) O-0.8 R - 12" Diameter Syphon Relief Sewer Opposite Oakville Crescent

This 12" Ø sewer acts as a relief for the 8" Riverside Drive syphon which crosses Oakville Creek at a point approximately opposite Oakwood Crescent. The syphon receives sewage from the Forester

Park Subdivision and the north area of Kerr Street and conveys it to the inlet manhole in front of the Navy Street WPCP on the opposite side of the creek. The syphon overflows frequently and domestic sewage is discharged during these periods into Oakville Creek.

The municipality plans to eliminate the Riverside Drive syphon by installing a pre-fab sewage pumping station which will receive the sewage and pump it to a new sewer on Queen Mary Drive. The new sewer will discharge by gravity into an existing 36" Ø intercepting sewer on Rebecca Street. The latter sewer is tributary to the Trafalgar WPCP.

Comments

The laboratory results of the sample collected from the syphon discharge were unsatisfactory, as is to be expected from a flow of this nature. Preliminary plans to correct this problem were made in 1961 and the municipality expects to have the matter corrected in 1963. The estimated cost of this project is $88,000.

(4) 0-1.3 W - 24" Diameter Storm Sewer Intersection of Sixth and Seventh Lines

A flow estimated at 10 - 15 gpm was discharging from the storm sewer outlet on June 3, 1963. Attention is directed to the analyses of the sample collected from this outlet which indicate considerable concentrations of organic matter and solids.

Comments

The origin of the wastes entering this sewer should be determined and illegal connections, if found, severed.

(5) O-1.8 DI - Drainage Ditch - King Paving and Materials Ltd.

Wastes from the ready-mix truck wash rack, a second wash rack and a steam jenny rack are discharged over the bank at the south-westerly side of the premises into a ditch. The latter is tributary to Oakville Creek.

The wastes in the ditch were insufficient for sampling at the time of the examination.

Comments

A further study will be made relative to the need for additional treatment facilities at these premises.

(6) O-2.0:P - 18" Diameter Storm Sewer - Oakville P.U.C. Warehouse, Sixth Line Road

A flow estimated at 2 - 3 gpm which was quite turbid was discharging from this sewer outlet at the time of sampling. Attention is directed to the exceedingly high suspended solids content in the sample collected from this outlet.

This sewer receives the wastes from the P.U.C. wash rack and yard drainage.

Comments

It would appear that additional treatment facilities will be required to reduce the suspended solids to acceptable limits of 15 ppm or less.

(7) O-2.0 W - 42" Diameter Storm Sewer - Cross Avenue

A green coloured flow estimated at 5 gpm was discharging from this sewer outlet at the time of sampling. The BOD content of the discharge was excessive, and considerable bacterial contamination is shown by the analysis.

Comments

This storm sewer serves a new shopping centre. The reason for the adverse analyses should be investigated and corrective action should be taken by the municipality.

(8) O-2.2 P - Drainage in Vicinity of Outlets O-2.2 W and O-2.2 W-2 - Sixth Line Road

While no flow was noted from storm sewers designated as O-2.2 W and O-2.2 W-2, waste characteristic of septic tank effluent was seeping through the bank just below these sewer outlets. This discharge may have originated from the premises on the opposite side of the Sixth Line Road.

Comments

The origin of the waste previously described should be ascertained and steps taken to prevent this discharge to the area in question.

(9) O-2.7 I - 24" Diameter Industrial Sewer - Long Manufacturing Company Limited

This industry, which is located on the west side of Kerr Street, south of the Queen Elizabeth Way, is engaged in the manufacturing and assembling of radiators and clutches for automobiles.

The average daily water consumption is in the range of 160,000 gallons. Approximately 80 per cent of the water consumed is used for cooling purposes and the remainder is utilized in metal treating operations such as cleaning and bright dipping.

The rinse waters from these operations are segregated from the cooling water discharges and pass through a neutralization system which consists of a downflow limestone bed.

Recent tests conducted by the Industrial Wastes Branch of the Commission showed that this system was not producing a satisfactory effluent for discharge to a sewer. To correct this situation, the company is now proceeding with the first stage of a program for reducing waste volume within the plant by valving water lines and installing still rinses following the acid metal treatment baths. The acid baths, which are dumped infrequently, and the still rinses will be neutralized before discharge by the addition of soda ash to each bath.

Comments

This company is attempting to improve its waste disposal facilities. Following an evaluation of these measures to correct this problem, the company will make a decision as to the necessity of installing further neutralizing equipment.

(10) 0-7.5 - 6" Diameter Outfall Sewer-
Association of United Ukranian Canadians Childrens Camp

The camp property, consisting of approximately 100 acres, is located on the north side of Highway No. 5, and is situated on Lot 23, Concession 1 NDS.

The installation of a 2.6 acre waste stabilization pond to serve this establishment was approved of in November, 1962, by the OWRC and was subsequently constructed. The pond is provided with a 6" Ø effluent sewer which would discharge to Oakville Creek. It is planned to operate this system to prevent an overflow during the summer months.

Comments

There was no discharge from the waste stabilization pond when it

was examined on June 20, 1963.

Routine inspections of this system will be made by the Commission.

15. OUTLETS TO MORRISON CREEK

The analyses of the samples collected from this watercourse and the sewer outlets that were discharging into it are recorded in Table 6.

Total number of outlets to Morrison Creek recorded - 14

Number of municipal sewer outlets - 11

Number of industrial sewer outlets - 3

Number of outlets sampled - 11

The sewers discharging wastes which resulted in adverse analyses are listed as follows. While the sewer serving Monsanto Oakville (1960) Limited is also mentioned, the effluent discharging from it was satisfactory at the time of sampling.

(1) M-0.2 W-5 - 27" Diameter Storm Sewer North of Lake Shore Road

A flow estimated at 7 - 10 gpm which was exceptionally high in suspended solids was discharging from this sewer at the time of sampling.

Comments

A marked increase in turbidity was noted in Morrison Creek downstream from this sewer outlet.

The source of the waste causing such turbidity should be determined and action taken to abate it.

(2) M-0.6 W - 15" Diameter Storm Sewer off Dianne Avenue

The coliform and suspended solids figures of the discharge

from this sewer exceeded the permissible limits. A defective private septic tank system was evidenced north of this sewer outlet.

Comments

The reason for the high counts should be investigated and corrective measures should be implemented.

(3) M-0.9 - 15" Diameter Storm Sewer - Burgundy Drive

The suspended solids results of the sample collected from this sewer exceeded the Commission's objective.

Comments

The cause of the adverse analysis should be determined and remedial action taken.

(4) MA-1.7 - Branch "A", 125' Downstream from Ditch Carrying Cooling Water from Lakeshore Dye Casting Limited

The coliform and BOD counts of the sample collected from this branch of Morrison's Creek exceeded the Commission's objective maximums.

Comments

The discharge of effluent from a defective septic tank system serving the Lakeshore Dye Casting Limited plant appears to be responsible for the condition of the stream at this location.

(5) MA-1.8 ID - Ditch Receiving Wastes from Lakeshore Dye Casting Limited

This factory is located along the service road on the south side of the Queen Elizabeth Way between the Seventh and Eighth Lines. It is engaged in the manufacture of metal castings of aluminum iron and other alloys.

The industrial wastes from this industry, which uses 40,000 -

50,000 gpd, are made up primarily of cooling water and a small volume of wastes estimated at 250 gpd which are high in suspended solids. The latter results from the washing of certain casting made in sand moulds.

The cooling water discharges at the east of the plant into one of the branches of Morrison Creek while the waste flow, high in solids, enters a pit recently excavated in reclaimed land from a low-lying area at the rear of the plant. The pit had no free-board at the time of examination on June 20, 1963.

A filamentous growth characteristic of the Spaerotilus natans species was evident in the ditch conveying the cooling water to the creek. The bottom of the ditch was septic in appearance. It would appear that this growth is promoted by some type of organic waste, possibly sanitary sewage, entering the building drain with the cooling water from the factory supplying the required dilution factor to provide compatible anaerobic environment.

Sanitary sewage from the plant is disposed of by way of a septic tank system which is located at the front of the premises. Effluent, evidently from the tile bed, was discharging into the creek at the time of the inspection on June 20, 1963.

Comments

The waste disposal facilities serving this plant require improvement. The plant management is anxious to obtain a connection to a municipal sewer. The latter is nonexistent, within connecting distance at present and will not likely be available in the immediate area until at least 1964 according to municipal officials.

In the meantime, steps should be taken by the plant management to correct the defective septic tank system and to prevent the discharge of polluting wastes into the creek via the cooling water outlet. Increased storage facilities for the wastes entering the pit at the rear of the plant may also be required to prevent an overflow.

(6) M-1.7 I - Industrial Sewer - Monsanto Oakville (1960) Ltd.

This plant is located at the north end of Reynolds Street, south of the CNR tracks. It is engaged in the production of vinyl film sheeting, coated fabrics and vinyl extrusion and ejection moulding compounds. The basic chemical process is the dry polymerization of vinyl resins to which fillers and stabilizers are added during mixing.

The average daily water consumption for a five month period was 245,000 gallons, the major portion of which was used for cooling of the calender rolls on the machines which form the vinyl sheeting.

The cooling water comes into contact with small amounts of lubricating oils used on the machines, and prior to discharge to nearby Morrison Creek it passes through a baffled oil separator 15' x 10' x 6'. The discharge from the separator then passes through a straw filter which removes the small droplets of oil that escape the separator. With frequent skimming of the separator basin and the replacement of the straw filter at regular intervals, this treatment system should turn out an acceptable effluent.

Comments

On the basis of the analyses of a single sample, the effluent

was satisfactory, although the suspended solids approached the maximum limits listed in the Commission's objectives.

Regular checks of the system are required to ensure proper maintenance of the treatment facilities.

(7) M-1.8 ID - Overflow from Settling Pond Serving Ferro Enamels (Canada) Limited

This plant is located on the south side of Davis Road, east of the Seventh Line. It is engaged in the production of vitreous or porcelain enamels used to cover a wide variety of products, especially household appliances.

Raw materials used include silica, soda ash, nickel and copper oxides which are mixed and fused together. On contact with cold water the fused materials break into small solid particles known as frit which is the form in which the enamels leave the plant.

The water consumption averages 130,000 gpd. The major portion of the industrial water is used for cooling with the significant waste coming from the water contacting the fused enamel as it leaves the furnace. This waste enters three sumps prior to discharging to a stone filter bed or basin. The latter overflows to Morrison Creek.

Comments

The BOD of the effluent from the filter bed was excessive, based on the analysis of the sample collected at the time of the survey. Discolouration of the stream was also caused by this discharge. It would appear that the present disposal methods are inadequate to prevent pollution of the watercourse.

The Industrial Waste Branch of the Commission plans to do a

more complete survey of this industry in order that specific recommendations in report form can be made to the industry to correct the problem.

16. OUTLETS TO LAKE ONTARIO

The results of the bacteriological and sanitary chemical analyses performed on the samples collected from the outlets discharging to Lake Ontario are presented in Table 7 of this report.

Total number of outlets to Lake Ontario recorded	- 43
Number of municipal sewer outlets	- 22
Number of industrial sewer outlets	- 2
Number of watercourse and/or ditch outlets	- 19
Number of outlets sampled	- 33

While the analyses of the majority of samples collected were within the Commission's objectives, the BOD and suspended solids contents of the effluents discharging from LO-58.0 W George St. storm sewer and LO-58.2 WR Reynolds St. storm and relief sanitary sewer were almost consistently excessive.

The high bacterial count of the sample collected from LO-57.3 W, representing a 39" Ø storm sewer connecting the watercourse at Lakewood Drive to the lake, may have been caused by effluent from a nearby defective septic tank system.

Comments

(1) LO-54.1 WR - 27" Diameter Storm and East Street Sewage Pumping Station Relief Sewer - East Street

While no flow was noted from this sewer outlet at the time of the examination, there was evidence of a previous discharge of raw

sewage from this sewer.

The East Street Sewage Pumping Station has no standby equipment but is reportedly capable of handling all flows directed to it. It would theoretically only discharge during power failure.

(2) LO-58.0 W - 42" Diameter Storm Sewer - George Street

A 42" Ø storm sewer has recently been installed south of Robinson Street, replacing the 18" Ø storm sewer. During the installation, a number of private and municipal sewers formerly discharging sanitary sewage to the 18" Ø sewer were severed.

Comments

These changes are expected to improve the quality of any future dry weather flow from this sewer.

(3) LO-58.0 R - 8" Diameter Relief Sanitary Sewer- Dunn Street

The flow from this sewer outlet was insufficient for sampling at the time of the examination, but there was evidence of a recent discharge of sanitary sewage from it. The installation of a sanitary sewer along Sumner and/or Palmer Avenues to intercept the flow now proceeding southwards and to divert it to the Trafalgar WPCP is planned for 1963 and will cost an estimated $36,000.

Comments

This redirection is designed to relieve the overload imposed on the sewers south of Sumner and Palmer Avenue and thereby eliminate the need for periodic by-passing of sewage to Lake Ontario via this sewer as well as a number of other sewers.

(4) 58.2 WR - 12" Diameter Storm and Relief Sanitary Sewer (Colborne Street), Reynolds Street

A flow estimated at 5 - 7 gpm was discharging from this sewer

outlet at the time of sampling on May 2, 1963.

Attention is drawn to the analyses of the samples collected from this outlet. These reveal that waste materials with high organic and bacterial concentrations are consistently discharged to Lake Ontario from this outlet.

Comments

The proposed Sumner and/or Palmer Avenue interceptor will be expected to eliminate the dry weather flow of sanitary sewage from this outlet.

Additional Improvements

Preliminary estimates to replace the Front Street sanitary sewer were prepared early in 1962. This sewer is cracked and broken at spots and subject to frequent obstructions. The municipality plans to replace this sewer in 1963 at an estimated cost of $28,000.

17. WATER QUALITY - LAKE ONTARIO

The Laboratory and Research Division of the OWRC collects samples on a regular basis by boat during the summer months from Lake Ontario at salient points approximately 100 feet off-shore opposite the area of the lake bordering Oakville.

The laboratory results of the sampling runs made in May and June, 1963, are included in Table 8 of this report.

Comments

In reviewing these results, it is noted that the coliform counts of all samples collected to date in 1963 were within the Commission's objective maximum of 2,400 coliforms per 100 ml. However, samples collected closer to the shoreline might reveal higher

coliform concentrations.

18. ALGAE IN LAKE ONTARIO

In recent years, algae have become a problem along the north shore of Lake Ontario and, therefore, a brief review of the main factors which contribute to their rapid growth is included here. Excessive growths of algae may occur in natural waters anywhere but the nuisance is greater where the concentration of mineral nutrients is increased by sewage effluents and by run-off waters from rich agricultural lands and other sources.

Cladophora is the member of the algae group which grows in abundance, particularly in the Port Credit to Hamilton area of Lake Ontario. These growths first appear in the spring during the latter part of May. During the month of June a rapid growth takes place, but after the initial development, a variety of growth patterns has been observed. The algae may cease to grow when the filaments are a few inches long or they may continue to grow until they are two feet long and cover the bottom completely. In late June and early July onshore winds scour the algae off the bottom and pile it along the shore. The quantity of algae and the time of its appearance along the shore depend on the winds and currents. A heavy growth on the beds may not develop into serious shoreline conditions if the winds and currents are not suitable to bring it ashore.

When the algae accumulations develop along the shore, that portion of the algae lying in the warm water begins to decompose. Within two or three days the algae loses its typical wooly tex-

ture, turns black and in the process of decomposition develops a strong "pigpen" odour. That portion of the algae which has been thrown high enough on the beach to dewater, dries, develops a hard cardboard-like consistency and does not create any odour nuisance.

Algae development usually varies directly with the amount of nutrients available to sustain growth. Nitrogen serves as a stable food with phosphorous acting as the catalyst which accelerates growth. Ammonia, generated in high concentrations by sludge digestion employed in the modern sewage treatment plant and discharged in its overflow liquors to the activated sludge process where it is oxidized either partially to nitrite or fully to nitrate, provides nitrogen in a form suitable for assimilation by algae. Also, the phosphorous content of the modern-day domestic detergent, which remains undiminished through sewage treatment of the biological type, represents an increasing problem. These sources of nutrients coupled with quantities of nitrogen and phosphorous gained through surface drainage reaching the lake represent an extreme problem in the future control of algae along the north shore of Lake Ontario.

Accumulations of decomposing algae give off offensive odours which the public often erroneously associate with sewage pollution. There can be no question that the objectionable conditions resulting along the shore do nothing but deter the public from the use of such waters. It is important in a pollution control program that the control of algae be included, particularly if the waters are to be used for recreational purposes. Further, such control will not necessarily completely result from the remedial measures taken

in controlling sewage discharge and storm overflows.

It should be pointed out that this Commission has been active in a research program to assess algae problems in Lake Ontario and Lake Erie and is endeavouring to determine a practical solution for control of these algae blooms. When a practical solution through chemical treatment or mechanical means is ascertained, it will then be the responsibility of the municipalities to effect these control measures. It is interesting to note that one of the locations for Commission research studies is in Lake Ontario offshore from Oakville, and work in this area is planned for this summer.

19. WATER QUALITY - SWIMMING AREAS

The Halton County Health Unit staff collects samples during the summer months from the swimming areas in the Town of Oakville.

The laboratory results of the samples collected by the health unit staff in 1962 are presented in Table 9 of this report.

Comments

The results were that the bacterial quality of the waters was highly variable and in many cases the bacterial counts exceeded the OWRC objective. These results are influenced by factors such as wind, water currents, surface run-offs and sewer discharges. The public using these waters for swimming may also contribute bacterial pollution.

20. CONCLUSIONS

The conclusions to be drawn from this report are as follows.

The municipal officials of the Corporation of the Town of Oakville are aware of pollution sources within Oakville and have either made plans or inaugurated work projects to eliminate practically all of these sources.

The town possesses a modern water pollution control plant which has a reserve capacity and produces a good effluent. A second, but older, plant is also in service and a satisfactory effluent is expected from this plant as a result of recent improvements effected here.

An extensive sanitary sewer program is underway in Oakville and these works will eliminate both potential and actual sources of pollution for Lake Ontario and Oakville Creek. The sanitary sewers that are presently overloaded and overflow intermittently during dry weather periods, will be relieved by part of this construction.

Illegal connections carrying sanitary sewage to a storm sewer were discovered recently by the engineering department during replacement of the existing sewer with a larger one, and these were ordered severed. It is considered that additional connections of this type affecting other storm sewers still exist and these will have to be ferreted out by the municipality and the offenders notified to sever them.

Some leachate from one of the two landfill sites serving Oakville was reaching an adjacent watercourse and seepage from a second site could advance to reach a stream. While the discharges from these sites may not be serious enough to impair the quality of the receiv-

ing streams at present, seepage of this type can result in water pollution and should be avoided.

The problems of handling wastes from the industries mentioned in this report were not dealt with in detail during this survey. It is sufficient to say that industrial waste disposal problems from a limited number of plants in Oakville do exist and the industries involved, together with the municipality and the Ontario Water Resources Commission, are endeavouring to work out a satisfactory arrangement for the treatment and disposal of these wastes.

The necessity for adequate treatment of wastes prior to discharge to a watercourse or lake and the advantages of clean waters are fully realized. The program for control must be a continuous one and requires the close co-operation of all interested parties, particularly the municipality, the industries and the Ontario Water Resources Commission. To this end, follow-up work will be conducted in Oakville by the Commission.

All of which is respectfully submitted,

District Engineer C.E. McIntyre
per C. H. Kretch

sh

Approved by_____
K.H. Sharpe, Director

BRONTE (12 MILE) CREEK

TABLE 1-1

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
B-0.1	Bronte Creek at East Shore opposite Ontario St.	June 22/60	-	210	1.7	240	-	-	6.	-	-	-	-	-
		May 18/61	-	221	3.4	388	-	-	16.	-	-	-	-	-
		June 14/62	-	1,780	3.0	332	-	-	40.	-	-	-	-	-
		May 14/63	-	9,000	1.8	320	-	-	12.5	5	-	-	-	-
B-0.4 W	12" ϕ storm sewer at Hwy. No. 2 S.W. side of bridge	May 1/63	-	NO FLOW NOTED										
		May 14/63	-	NO FLOW NOTED										
B-0.4 W-2	8" ϕ storm sewer at Hwy. No. 2 S.W. side of bridge	May 1/63	-	NO FLOW NOTED										
		May 14/63	-	NO FLOW NOTED										
B-0.4 R	15" ϕ relief sewer - Triller St. S.P.S. at Hwy. No. 2 S.E. side of bridge	May 1/63	-	NO FLOW NOTED										
		May 14/63	-	NO FLOW NOTED										
B-0.4	Bronte Creek at Highway No. 2 downstream side of bridge	June 22/60	-	123	1.9	248	-	-	5.	-	-	-	-	-
		Sept. 20/60	-	90	3.0	216	-	-	2.	0	-	-	-	-
		Oct. 19/60	-	34	3.2	260	-	-	3.	-	-	-	-	-
		May 18/61	-	155	2.8	368	-	-	7.	8.	-	-	-	-
		Nov. 22/61	-	59	2.2	364	-	-	4.5	-	-	-	-	-
		June 14/62	-	1,170	2.2	350	-	-	3l.	-	-	-	-	-
		Aug. 21/62	-	1,230	1.5	294	-	-	3.1	30.	-	-	-	-
		May 1/63	-	2,200	3.2	324	13	311	-	4.	-	-	-	-
		May 14/63	-	250	2.0	324	-	-	8.0	-	-	-	-	-
B-0.4 W-3	15" ϕ storm sewer at Hwy. No. 2 N.W. side of bridge	May 14/63	-	2,100	1.5	368	-	-	1.4	-	-	-	-	-

TABLE 1-2

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
B-1.1 W	72" ϕ storm sewer opposite Rebecca St.W.	May 14/63	-	14,200	1.7	448	-	-	3.1	-	-	-	-	-
B-2.7 W	36" ϕ storm sewer west of Second Line S. of Q.E.W.	May 14/63	-	13	1.8	2028	-	-	0.6	-	-	-	-	-
B-2.8 W	36" ϕ storm sewer west of Second Line	May 14/63	-	390	2.5	1170	-	-	0.7	-	-	-	-	-
B-2.8 W	Bronte Creek at Q.E.W.	June 22/60	-	80	1.6	260	-	-	2.	-	-	-	-	-
		May 18/61	-	20	2.6	352	-	-	3.	-	-	-	-	-
		June 14/62	-	980	2.2	370	-	-	32.	-	-	-	-	-
		May 14/63	-	206	1.8	310	-	-	4.0	-	-	-	-	-

PALERMO (14 MILE) CREEK

TABLE 2-1

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. T.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (BB)	Ether Solubles	pH	Chrome	Copper
P-0.2	Palermo Creek at Lake Shore Rd.	Sept. 20/60	-	NOT SAMPLED										
		Oct. 19/60	-	2	2.0	736	-	-	1.	-	-	-	-	-
		Nov. 22/61	-	4,800	3.3	496	-	-	2.3	3	-	-	-	-
		Aug. 21/62	-	730	1.4	392	-	-	2.6	0	-	-	-	-
		May 2/63	-	246	3.6	340	-	-	6.0	4	-	-	-	-
P-0.6 W	72" ϕ storm sewer - Rebecca St.	May 15/63	-	101,000	3.3	548	4	544	-	-	-	-	-	-
P-0.6 W-2	18" ϕ storm sewer - East of Thomas A. Blakelock High School	May 15/63		NO FLOW NOTED										
P-0.6 W-3	12" ϕ storm sewer - Rebecca St. S.W. side of bridge	May 15/63		NO FLOW NOTED										
P-0.6 W-4	12" ϕ storm sewer - Rebecca St. N W. side of bridge	May 15/63		NO FLOW NOTED										
P-0.6 W-5	27" ϕ storm sewer - opposite Willis Dr.	May 15/63		NO APPARENT FLOW - OUTLET PARTLY SUBMERGED										
P-0.7 W	33" ϕ storm sewer off Lees Lane	May 15/63	-	46	2.5	604	7	597	-	-	-	-	-	-
P-0.7 W-2	18" ϕ storm sewer off Willowbrook Dr.	May 15/63		NO FLOW NOTED										
P-1.4 W	24" ϕ storm sewer - Bridge Road S.W. side of bridge	May 15/63		NOT SAMPLED - OUTLET PARTLY SUBMERGED										
P-1.4 W-2	27" ϕ storm sewer Bridge Road S.E. side of bridge	May 15/63		NOT SAMPLED - OUTLET PARTLY SUBMERGED										

STREAM "A"

TABLE 3-1

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
SA-0.1	Stream "A" East of Westdale Rd. at Lake Ontario	Sept. 20/60	-	22,000	8	290	-	-	4	0	-	-	-	-
		Oct. 19/60	-	2,000	3.2	312	-	-	2	-	-	-	-	-
		Nov. 22/61	-	2,200	3.1	538	-	-	2.6	2	-	-	-	-
		Aug. 21/62	-	3,300	1.1	662	-	-	5.0	0	-	-	-	-
		May 2/63	-	2,900	3.2	372	-	-	7.0	18	-	-	-	-
SA-0.7 W	18" ϕ Storm Sewer Weldon Ave.	May 15/63	FLOW INSUFFICIENT FOR SAMPLING											

STREAM "B"

TABLE 4-1

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
SB-0.1	Stream "B" at Birch Hill Lane	Nov. 30/61	-	1,800	3.8	724	-	-	20	8	-	-	-	-
		Aug. 21/62	-	1,700	4.4	740	-	-	7.5	6	-	-	-	-
		May 2/63	-	7,700	2.8	548	-	-	2.3	2	-	-	-	-
SB-0.5 W	24" Storm sewer-Rebecca St. S.E. Side of culvert (temporary sewer)	May 15/63	-	186	1.8	664	7	657	-	-	-	-	-	-

OAKVILLE CREEK

TABLE 5 - I

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
0-0.1	Oakville Creek at foot of Navy St.	June 28/60	-	1,000	2.5	258	-	-	26.	-	-	-	-	-
		Sept.20/60	-	39,000	3.9	234	-	-	3.	3	-	-	-	-
		Oct. 19/60	-	27	3.2	256	-	-	1.	-	-	-	-	-
		May 31/61	-	40	1.3	318	-	-	4.	-	-	-	-	-
		Nov. 22/61	-	252	3.8	276	-	-	5.0	0	-	-	-	-
		Dec. 14/61	-	30	4.0	258	-	-	8.	-	-	-	-	-
		May 30/62	-	80	3.7	220	10	210	-	-	-	8.4	-	-
		Aug. 21/62	-	440	1.6	216	-	-	16	7	-	-	-	-
		May 2/63	-	1,470	3.0	326	19	307	-	5	-	-	-	-
		June 5/63	-	46	3.1	248	-	-	5.0	-	-	-	-	-
0-0.1 R	12" ϕ relief sewer Walker St. S.P.S. at Lake Ontario	May 16/63	-	NOT LOCATED EVIDENCE OF DISCHARGE TO CREEK FROM STATION										
0-0.3 W	12" ϕ stormsewer William St.	May 16/63	-	NO FLOW NOTED										
0-0.3 I	15" ϕ industrial sewer Sterling Faucet Canada Ltd.	May 15/63	-	0	3.2	240	4	236	- Nickel - 7.7	-	- Alkalinity - 88	-	4	-
0-0.3 W	12" ϕ storm sewer opposite Burnet St.	May 15/63	-	UNABLE TO COLLECT REPRESENTATIVE SAMPLE AS DISCHARGE FROM THIS SEWER JOINS FLOW FROM 0-0.3 I										
0-0.4 W	15" ϕ storm sewer Robinson St.	May 16/63		NO FLOW NOTED										
0-0.4	Oakville Creek at Highway No. 2 downstream side of bridge	June 28/60	-	1,400	1.6	262	-	-	9.	-	-	-	-	-
		May 31/61	-	30	2.4	336	-	-	4.	-	-	-	-	-
		Dec. 14/61	-	0	4.1	272	-	-	6.5	-	-	-	-	-
		May 30/62	-	40	2.4	234	12	222	-	-	-	8.2	-	-
		June 5/63	-	14	1.6	294	-	-	5.0	-	-	-	-	-

TABLE 5-2

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
0-0.4 WR	18"ϕ storm and Forsythe St. S.P.S. relief sewer - Colborne St.	May 16/63	-	>1,500	9.8	440	-	-	3.5	-	-	-	-	-
0-0.5 W	18"ϕ storm sewer Rebecca St. S.W. side of bridge	May 16/63	-	900	1.2	1954	976	978	-	-	-	-	-	-
0-0.6 T	18"ϕ outfall sewer Navy Street Water Pollution Control Plant	June 28/60	-	20	4.8	496	22	474	-	-	-	-	-	-
		May 31/61	-	116	15.	562	28	534	-	-	-	-	-	-
		Dec. 14/61	-	180	30.	454	38	416	-	-	-	-	-	-
		May 30/62	-	0	4.0	390	22	368	-	-	-	7.9	-	-
		May 16/63	-	320	8.6	532	27	505	-	-	-	-	-	-
		June 5/63	-	0	4.8	564	-	-	17.0	-	-	-	-	-
0-0.6 W	42"ϕ storm sewer Bond St.	May 16/63	-	3,100	1.7	536	-	-	0.5	-	-	-	-	-
0-0.7 W	42"ϕ storm sewer off River Side Drive	May 16/63	-	3,300	1.6	748	-	-	0.7	-	-	-	-	-
0-0.8 R	12"ϕ relief sewer opposite Oakwood Cres.	May 16/63	-	18,100,000	112.	548	108	440	-	-	-	-	-	-
0-0.9 W	24"ϕ storm sewer off River Side Drive	May 16/63	-	NO FLOW NOTED										
0-1.1 W	15"ϕ concrete storm sewer opposite Lawson St.	May 16/63	-	NO FLOW NOTED										
0-1.1 W-2	15"ϕ corrugated storm sewer opposite Lawson St.	May 16/63		NO FLOW NOTED										
0-1.1 W-3	17"ϕ concrete storm sewer opposite Lawson St.	May 16/63	-	>1,500	3.1	728	-	-	1.1	-	-	-	-	-

TABLE 5-3

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
0-0.1 W-4	48" ϕ storm sewer opposite Lawson St.	May 16/63	-	5,400	3.0	540	-	-	2.0	-	-	-	-	-
0-1.3 W	24" ϕ storm sewer - intersection of Sixth and Seventh Lines	June 3/63	-	57,000	21.	408	28	380	-	-	-	-	-	-
0-1.8 D1	Drainage ditch King Paving and Materials Ltd.	June 3/63	-	Flow insufficient for sampling										
0-2.0	Oakville Creek at C.N.R. overhead bridge	June 28/60	-	0	1.4	270	-	-	7.	-	-	-	-	-
		May 31/61	-	0	1.2	326	-	-	2.	-	-	-	-	-
		Dec. 14/61	-	0	4.7	412	-	-	10.	-	-	-	-	-
		May 30/62	-	2	3.8	276	10	266	-	-	-	8.8	-	-
		June 5/63	-	0	0.9	314	-	-	1.5	-	-	-	-	-
0-2.0 P	18" storm sewer Oakville P.U.C. Warehouse	June 3/63	-	48,000	39.	518	207	311	-	-	-	-	-	-
0-2.0 W	42" ϕ storm sewer Cross Ave.	June 3/63	-	229,000	23.	1072	13	1059	-	-	-	8.3	-	-
0-2.2 P	Drainage in vicinity of outlets 0-2.2W and 0-2.2W-2 (origin presumably private) Sixth Line Rd.	June 3/63	-	24,300	12.	894	30	864	-	-	-	-	-	-
0-2.2 W	24" ϕ storm sewer off Sixth Line opposite 627 Sixth Line Road	June 3/63	-	No flow noted										
0-2.2 W-2	24" ϕ storm sewer off Sixth Line opposite 627 Sixth Line Road	June 3/63	-	No flow noted										

TABLE 5 - 4

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml.		5-Day	Solids			Phenols	Ether			
			I.N.	M.F.	B.O.D.	Total	Susp.	Diss.	Turbidity	(PPB)	Solubles	pH	Chrome	Copper
O-2.7 I	24" ϕ industrial sewer - Long Mfg. Co. Ltd.	June 3/63	-	0	3.2	258	17	241	-	-	7.2	-	-	-
O-2.9	Oakville Creek at Q.E.W.	June 28/60	-	119	2.0	214	-	-	5.	-	-	-	-	-
		May 3/61	-	24	1.1	326	-	-	2.	-	-	-	-	-
		Dec. 14/61	-	31	4.1	406	-	-	3.3	-	-	-	-	-
		May 30/62	-	80	3.5	264	6	258	-	-	-	8.6	-	-
		June 5/63	-	66	1.0	300	-	-	1.0	-	-	-	-	-
O-2.9 W	24" ϕ storm sewer at Q.E.W. bridge S.W. side	June 3/63		NO FLOW NOTED										
O-2.9 W-2	36" ϕ storm sewer at Q.E.W. bridge N.E. side	June 3/63	-	18,300	5.2	706	10	696	-	-	-	-	-	-
OS-3.7	Sunnidale Branch at Oakville Golf Club Ltd. road off Sixth Line North of Q.E.W.	June 23/60	-	26,500	23.	452	-	-	8.	-	-	-	-	-
		May 31/61	-	1,140	8.2	496	-	-	6.	-	-	-	-	-
		July 17/61	-	1,900	0.5	416	-	-	1.	-	-	-	-	-
		June 5/63	-	2,100	1.9	400	-	-	2.3	-	-	-	-	-
O-6.5	Oakville Creek at Hwy. No. 5	June 23/60	-	14,900	1.6	236	-	-	4.	-	-	-	-	-
		May 31/61	-	17	2.0	336	-	-	2.	-	-	-	-	-
		Dec. 14/61	-	8	3.6	386	-	-	2.6	-	-	-	-	-
		May 30/61	-	60	2.6	280	14	266	-	-	-	5.0	-	-
		June 5/63	-	26	1.7	322	-	-	1.4	-	-	-	-	-
O-7.5	6" ϕ outfall sewer AUIJC Ukranian Childrens Camp	June 20/63		NO FLOW NOTED										
OE-11.0	East Oakville Creek at Fourth Line	June 23/60	-	5,800	0.7	168	-	-	3.	-	-	-	-	-
		May 3/61	-	8	1.1	290	-	-	2.	-	-	-	-	-
		Dec. 14/61	-	6	4.8	382	-	-	5.5	-	-	-	-	-

TABLE 5-5

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
OE-11.0	East Oakville Creek at Fourth Line (cont.)	May 30/62	-	110	1.7	254	16	238	-	-	-	8.5	-	-
		June 5/63	-	60	0.8	294	-	-	2.0	-	-	-	-	-
OE-15.8	East Oakville Creek at No. 5 Side Road	June 23/60	-	1,400	1.3	310	-	-	4.	-	-	-	-	-
		May 31/61	-	370	2.2	336	-	-	6.	-	-	-	-	-
		Dec. 14/61	-	-	3.6	364	-	-	18.	-	-	-	-	-
		June 5/63	-	290	2.1	332	-	-	9.5	-	-	-	-	-
0-10.4	Oakville Creek at Lower Base Line Road	Aug. 3/60	-	600	3.3	-	-	-	14.	-	-	-	-	-
		Sept. 8/60	-	51	1.4	-	-	-	2.	-	-	-	-	-
		May 31/61	-	40	2.6	328	-	-	4.	-	-	-	-	-
		July 14/61	-	5,000	2.4	354	-	-	6.	-	-	-	-	-
		Sept. 28/61	-	43	2.2	464	-	-	2.	-	-	-	-	-
		Dec. 14/61	-	2	3.7	388	-	-	4.0	-	-	-	-	-
		May 30/62	-	140	2.9	306	8	298	-	-	-	9.1	-	-
		June 19/62	-	1,500	2.2	266	-	-	7.	-	-	-	-	-
		June 5/63	-	31,000	2.3	336	-	-	2.3	-	-	-	-	-
0-12.6	Oakville Creek at No. 5 Side Road	Aug. 3/60	-	83	3.	-	-	-	15.	-	-	-	-	-
		Sept. 8/60	-	87	3.0	-	-	-	1.	-	-	-	-	-
		May 31/61	-	130	2.1	334	-	-	3.	-	-	-	-	-
		July 14/61	-	2,690	2.8	364	-	-	5.	-	-	-	-	-
		Sept. 28/61	-	180	3.8	390	-	-	3.	-	-	-	-	-
		Dec. 14/61	-	11,200	3.4	452	-	-	5.0	-	-	-	-	-
		May 30/62	-	280	2.7	316	10	306	-	-	-	8.9	-	-
		July 4/62	-	500	-	-	-	-	-	-	-	-	-	-
		June 5/63	-	51,000	2.6	338	-	-	6.0	-	-	-	-	-

TABLE 5-6

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
ONE-15.0	North-East Milton Branch at No. 10 Side Road	June 23/60	-	2,600	2.9	504	-	-	7.	-	-	-	-	-
		Aug. 3/60	-	134,000	11.	-	-	-	49.	-	-	-	-	-
		Dec. 14/61	-	41,000	10.	950	-	-	29.	-	-	-	-	-
		June 5/61	-	334,000	8.8	974	-	-	24.	-	-	-	-	-
0-14.8	Oakville Creek at No. 10 Side Road	June 23/60	-	4,000	1.5	314	-	-	9.	-	-	-	-	-
		Aug. 3/60	-	16,000	2.8	-	-	-	17.	-	-	-	-	-
		Sept. 8/60	-	1,100	1.7	-	-	-	3.	-	-	-	-	-
		May 31/61	-	228	3.	316	-	-	4.	-	-	-	-	-
		July 14/61	-	9,000	2.6	300	-	-	5.	-	-	-	-	-
		Sept. 28/61	-	20	3.2	326	-	-	3.	-	-	-	-	-
		Dec. 14/61	-	17,900	5.6	454	-	-	12.0	-	-	-	-	-
		May 30/62	-	620	3.2	394	14	380	-	-	-	8.7	-	-
		June 5/63	-	10,000	2.6	346	-	-	8.5	-	-	-	-	-
0-17.2	Oakville Creek at Base Line Road	June 23/60	-	117	1.2	276	-	-	4.	-	-	-	-	-
		Aug. 3/60	-	15,000	2.8	-	-	-	8.	-	-	8.1	-	-
		Sept. 8/60	-	60	3.2	-	-	-	2.	-	-	8.4	-	-
		May 31/61	-	43	1.3	316	-	-	1.	-	-	-	-	-
		Dec. 14/61	-	0	4.1	342	-	-	5.	-	-	-	-	-
		May 30/62	-	1,770	1.4	296	10	286	-	-	-	8.4	-	-
		June 5/63	-	80	1.3	324	-	-	3.6	-	-	-	-	-

MORRISON CREEK

TABLE 6 - 1

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
M-0.2	Morrison Creek at Lake Shore Rd.	Sept. 20/60	-	540	2.6	230	-	-	2.	0	-	-	-	-
		Oct. 19/60	-	0	2.4	214	-	-	2.	-	-	-	-	-
		Nov. 30/61	-	800	4.1	400	-	-	3.1	2	-	-	-	-
		Aug. 22/62	-	6,000	1.0	336	-	-	4.0	5	-	-	-	-
		May 3/63	-	1,100	3.8	370	-	-	3.5	2	-	-	-	-
		June 4/63	-	15,000	1.2	478	108	370	-	-	-	-	-	-
M-0.2 W	12" ϕ storm sewer Lake Shore Rd. S.E. side	June 4/63		NO FLOW NOTED										
M-0.2 W-2	15" ϕ storm sewer Lake Shore Rd. S.W. side	June 4/63	-	2	1.4	1054	6	1048	-	-	-	-	-	-
M-0.2 W-3	15" ϕ storm sewer Lake Shore Rd. N.W. side	June 4/63	-	3,200	1.2	796	5	791	-	-	-	-	-	-
M-0.2 W-4	12" ϕ storm sewer Lake Shore Rd. N.E. side	June 4/63		FLOW INSUFFICIENT FOR SAMPLING										
M-0.2 W-5	27" ϕ storm sewer North of Lake Shore Rd.	June 4/63	-	1,400	1.1	24,120	21,238	2,882	-	-	-	-	-	-
M-0.6 W	15" ϕ storm sewer off Dianne Ave.	June 4/63	-	11,000	2.9	678	98	580						
M-0.9 W	15" ϕ storm sewer Burgundy Dr.	June 4/63	-	21,100	2.3	544	24	520	-	-	-	-	-	-
M-0.9 W-2	18" ϕ storm sewer Morrison Heights Dr.	June 4/63	-	8,900	0.6	480	9	471	-	-	-	-	-	-
M-1.0 W	21" ϕ storm sewer Ascot Dr.	June 4/63	-	400	1.1	612	10	602	-	-	-	-	-	-

TABLE 6 - 2

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
MA-1.2 W	21" ϕ storm sewer Lynbrook Rd.- (Branch A of Morrison Creek)	June 4/63	-	NOT SAMPLED - OUTLET PARTLY SUBMERGED										
MA-1.7	Branch A - 125' downstream from ditch carrying cooling water from Lakeshore Dye Casting Ltd. plant	June 20/63	-	10,900	17.0	344	-	-	5.0	-	-	-	-	-
MA-1.8 ID	Ditch receiving cooling water from Lakeshore Dye Casting Ltd.	June 20/63	-	3,200	39.0	260	-	-	8.0	-	-	-	-	-
MA-1.8	Branch A at south service Rd. just north of Lakeshore Dye Casting Ltd.	June 20/63	-	140	0.8	388	-	-	2.6	-	-	-	-	-
M-1.6	Morrison Creek at Watson Ave.	June 4/63	-	1,200	2.0	510	10	500	-	-	-	-	-	-
M-1.7 I	Industrial sewer - Monsanto Oakville (1960) Ltd.	June 4/63	-	1,400	1.8	238	12	226	-	-	-	-	-	-
M-1.7	Morrison Creek at Allan St.	June 4/63	-	600	1.6	398	39	359	-	-	-	-	-	-
M-1.8 ID	Overflow from settling pond serving Ferro Enamels (Canada) Ltd.	June 4/63	-	20	45.	318	16	302	-	-	-	-	-	-
M-1.9 W	18"ϕ storm sewer - Davis Rd.	June 4/63	-	6,700	0.9	280	5	275	-	-	-	-	-	-
M-1.9	Morrison Creek at Davis Rd.	June 4/63	-	2,100	1.2	454	9	445	-	-	-	-	-	-

LAKE ONTARIO (OUTFALLS ONLY)

TABLE 7 - I

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
LO-52.5 TI	30" ϕ outfall sewer - Cities Service Refining (Canada) Ltd.	Sept. 20/60	-	110	2.9	724	34	690	-	4.	-	-	-	-
		Oct. 19/60	1,000	-	5.6	414	4	410	-	90.	-	-	-	-
		Nov. 30/61	-	64	4.2	1456	-	-	6.0	8.	-	-	-	-
		Sept. 4/62	-	42	1.0	1114	4	1110	0.7	0	-	-	-	-
		May 1/63	-	17	3.2	986	4	982	-	2.	-	-	-	-
LO-53.0 D	Sheldon Creek at Hwy. No. 2 - west of Cudmore Rd.	Sept. 20/60	-	NO FLOW NOTED										
		Oct. 19/60	-	0	1.9	568	-	-	1.	-	-	-	-	-
		Nov. 22/61	-	980	3.2	578	-	-	38.	0	-	-	-	-
		Aug. 21/62	-	13,000	1.4	454	-	-	68.	0	-	-	-	-
		May 1/63	-	900	4.8	454	111	343	-	2	-	-	-	-
LO-53.8 D	Bronte Creek at Hwy. No. 2	Sept. 20/60	-	90	3.0	216	-	-	2.	0	-	-	-	-
		Oct. 19/60	-	34	3.2	260	-	-	3.	-	-	-	-	-
		Nov. 22/61	-	59	2.2	364	-	-	4.5	-	-	-	-	-
		Aug. 21/62	-	1,230	1.5	294	-	-	3.1	30.	-	-	-	-
		May 1/63	-	2,200	3.2	324	13	311	-	4.	-	-	-	-
LO-54.1 D	Watercourse at foot of East St.	Nov. 30/61		FLOW INSUFFICIENT FOR SAMPLING										
		May 1/63	-	3,700	3.3	454	5	449	-	5.	-	-	-	-
LO-54.1 WR	27" ϕ storm and East St. S.P.S. relief sewer East St.	May 1/63		NO FLOW NOTED EVIDENCE OF PREVIOUS DISCHARGE OF DOMESTIC SEWAGE										
LO-54.9 D	Watercourse at west side of Coronation Park (Outlet south of refreshment stand)	May 1/63	-	2,100	2.6	346	23	323	-	4.	-	-	-	-

TABLE 7-2

OUTFALL TABULATION AND ANALYTICAL RESULTS

SAMPLING POINT NO.	LOCATION	DATE EXAMINED	COLIFORMS PER 100 ML. I.N.	COLIFORMS PER 100 ML. M.F.	5-DAY B.O.D.	SOLIDS TOTAL	SOLIDS SUSP.	SOLIDS DISS.	TURBIDITY	PHENOLS (PPB)	ETHER SOLUBLES	pH	CHROME	COPPER
LO-55.0 D	WATERCOURSE AT EAST SIDE OF CORONATION PARK (OUTLET SOUTH OF PUBLIC WASHROOMS)	MAY 1/63	-	19,000	2.5	560	6	554	-	4	-	-	-	-
LO-55.2 R	36" ϕ RELIEF SEWER - MAIN WATER POLLUTION CONTROL PLANT STORM TANKS	JUNE 20/60	OUTLET PARTLY SUBMERGED NO INDICATION OF DISCHARGE											
LO-55.2 T	30" ϕ OUTFALL SEWER MAIN WATER POLLUTION CONTROL PLANT	SEPT.20/60	-	5	10.	504	34	420	-	4	-	-	-	-
		OCT. 19/60	100	-	18.	540	14	526	-	-	-	-	-	-
		NOV. 30/61	-	500	60.	612	78	534	18	12	-	-	-	-
		AUG. 21/62	-	30	8.0	552	24	528	-	4	-	-	-	-
		MAY 3/63	-	10	3.2	586	-	-	16	10	-	-	-	-
LO-55.4 D	WATERCOURSE - WEST OF SANDWELL DR.	MAY 2/63	-	68	3.2	428	-	-	2.9	2	-	-	-	-
LO-55.6 D	DRAINAGE DITCH SOUTH OF STERLING DR.	MAY 2/63	FLOW INSUFFICIENT FOR SAMPLING											
LO-55.8 D	PALERMO CREEK (14 MILE CREEK) AT LAKE SHORE RD.	SEPT.20/60	-	NOT SAMPLED										
		OCT. 19/60	-	2	2.0	736	-	-	1.	-	-	-	-	-
		NOV. 22/61	-	4,800	3.3	496	-	-	2.3	3	-	-	-	-
		AUG. 21/62	-	730	1.4	392	-	-	2.6	0	-	-	-	-
		MAY 2/63	-	246	3.6	340	-	-	6.0	4	-	-	-	-
LO-56.1 W	24" ϕ STORM SEWER - WESTDALE RD.	MAY 2/63	-	500	2.1	556	-	-	1.7	3	-	-	-	-
LO-56.3 D	STREAM "A" EAST OF WESTDALE RD. AT LAKE ONTARIO (ACCESS VIA APPLEBY COLLEGE)	SEPT.20/60	-	22,000	8.	290	-	-	4.	0	-	-	-	-
		OCT. 19/60	-	2,000	3.2	312	-	-	2.	-	-	-	-	-
		NOV. 22/61	-	2,200	3.1	538	-	-	2.6	2	-	-	-	-

TABLE 7- 3

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
LO-56.3 D	Stream "A" east of Westdale Rd. at Lake Ontario (access via Appleby College)	Aug. 21/62	-	3,300	1.1	662	-	-	5.0	0	-	-	-	-
		May 2/63	-	2,900	3.2	372	-	-	7.0	18	-	-	-	-
LO-56.6 D	Stream "B" at Birch Hill Lane	Nov. 30/61	-	1,800	3.8	724	-	-	20	8	-	-	-	-
		Aug. 21/62	-	1,700	4.4	740	-	-	7.5	6	-	-	-	-
		May 2/63	-	7,700	2.8	548	-	-	2.3	2	-	-	-	-
LO-57.3 D	Watercourse at Lakewood Dr.	Sept. 20/60	-	47,000	6.2	706	-	-	8	0	-	-	-	-
		Oct. 19/60	-	1,200	4.0	804	-	-	4	-	-	-	-	-
		Nov. 22/61	-	30,000	2.9	894	-	-	5	4	-	-	-	-
		Aug. 21/62	-	22,000	1.5	694	-	-	10.5	6	-	-	-	-
		May 2/63	-	1,200	2.7	598	-	-	7.0	5	-	-	-	-
LO-57.3 W	39" ϕ storm sewer connecting watercourse LO-57.3 D to lake	May 2/63	-	7,800,000	3.0	616	10	606	-	3	-	-	-	-
LO-57.4 D	Watercourse at Brock St.	Sept. 20/60	-	Flow insufficient for sampling										
		Oct. 19/60	-	Flow insufficient for sampling										
		Nov. 22/61	-	173,000	11.	826	-	-	7.	5	-	-	-	-
		Aug. 21/62	-	9,100	1.4	638	-	-	5.0	3	-	-	-	-
		May 2/63	-	9,300	4.0	748	12	736	-	4	-	-	-	-
LO-57.5 W	36" ϕ storm sewer- Kerr St.	Sept. 20/60	-	500	2.5	324	-	-	31	0	-	-	-	-
		Oct. 19/60	-	0	6.8	222	-	-	1	-	-	-	-	-
		Nov. 22/61	-	18	0.7	198	-	-	2.6	2	-	-	-	-
		Aug. 21/62	-	190	3.6	234	36	198	-	0	-	-	-	-
		May 2/63	-	0	2.5	290	14	276	-	12	-	-	-	-

TABLE 7-4

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
LO-57.8 D	Oakville Creek at foot of Navy St.	Sept. 20/60	-	39,000	3.9	234	-	-	3.	3	-	-	-	-
		Oct. 19/60	-	27	3.2	256	-	-	1.	-	-	-	-	-
		Nov. 22/61	-	252	3.8	276	-	-	5.0	0	-	-	-	-
		Aug. 21/62	-	440	1.6	216	-	-	16.	7	-	-	-	-
		May 2/63	-	1,470	3.0	326	19	307	-	5	-	-	-	-
LO-57.8 R	12" ϕ relief sewer-Navy St. S.P.S. at Lake Ont.	May 2/63		NOT LOCATED										
LO-57.9 R	Relief sanitary sewer-Navy St.	May 2/63		NOT LOCATED										
LO-58.0 W	42" ϕ storm sewer - George St.	Sept. 20/60	-	3,500,000	17.	248	18	230	-	100	-	-	-	-
		Oct. 19/60	-	500	125.	484	78	406	-	150	-	-	-	-
		Nov. 22/61	-	13,330	6.2	262	-	-	2.1	6	-	-	-	-
		Aug. 21/62	-	115,000	20.	240	18	222	-	50	-	-	-	-
		May 2/63	-	92,000	13.	828	149	679	-	250	-	-	-	-
LO-58.0 R	8" ϕ relief sanitary sewer - Dunn St.	May 2/63		FLOW INSUFFICIENT FOR SAMPLING EVIDENCE OF RECENT DISCHARGE OF DOMESTIC SEWAGE										
LO-58.1 W	12" ϕ storm sewer - Dundas St. (West outlet)	Sept. 20/60		NO FLOW NOTED										
		Oct. 18/60		NO FLOW NOTED										
		Nov. 22/61		NO FLOW NOTED										
		May 2/63		FLOW INSUFFICIENT FOR SAMPLING										
LO-58.1 W-2	12" ϕ storm sewer - Dundas St. (East outlet)	Sept. 20/60		NO FLOW NOTED										
		Oct. 19/60		NO FLOW NOTED										
		Nov. 22/61		NO FLOW NOTED										
		May 2/63		NO FLOW NOTED										

TABLE 7- 5

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
LO-58.2 WR	12" ϕ storm and relief sanitary sewer (Colborne St.) Reynolds St.	Sept.20/60	-	36,000,000	38	300	30	270	-	10	-	-	-	-
		Oct. 19/60	-	8,700	760	388	28	360	-	500	-	-	-	-
		Nov. 22/61	-	210,000	106	536	-	-	42.	12	-	-	-	-
		Aug. 21/62	-	4,000,000	5.8	226	8	218	-	10	-	-	-	-
		May 2/63	-	219,000	51	372	24	348	-	15	-	-	-	-
LO-58.3 W	12" ϕ storm sewer - Allan St.	Sept.20/60		NO FLOW NOTED										
		Oct. 19/60		NO FLOW NOTED										
		Nov. 22/61		NO FLOW NOTED										
		Aug. 21/62	-	11,400	1.9	842	4	838	-	0	-	-	-	-
		May 3/63	-	1,700	3.0	686	-	-	1.8	4	-	-	-	-
LO-58.4 W	48" ϕ storm sewer - First St. (West side)	Sept.20/60		NO FLOW NOTED										
		Oct. 19/60		NO FLOW NOTED										
		Nov. 22/61	-	15,100	2.9	660	-	-	2.0	0	-	-	-	-
		Aug. 21/62	-	94,000	3.6	946	36	910	-	0	-	-	-	-
		May 3/63	-	1,900	2.1	698	-	-	1.8	0	-	-	-	-
LO-58.4 R	8" ϕ relief sewer - First St. S.P.S. First St. (East side)	Sept.20/60		NO FLOW NOTED										
		Oct. 19/60		NO FLOW NOTED										
		Nov. 22/61		NO FLOW NOTED										
		May 3/63	-	114,000	9.2	816	-	-	6.5	0	-	-	-	-

TABLE 7-6

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. T.N.	Coliforms per 100 ML. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (PPB)	Ether Solubles	pH	Chrome	Copper
LO-58.6 D	Watercourse between Park Ave. and Second St.	Sept. 20/60		NO FLOW NOTED										
		Oct. 20/60		NO FLOW NOTED										
		Nov. 22/61		NO FLOW NOTED										
		Aug. 21/62	-	46	1.0	234	-	-	4.0	0	-	-	-	-
		May 3/63	-	9,500	1.8	536	-	-	2.6	10	-	-	-	-
LO-58.9 D	Watercourse at Esplanade between Howard Ave. and Eighth Line	Sept. 20/60		FLOW INSUFFICIENT FOR SAMPLING										
		Oct. 19/60		FLOW INSUFFICIENT FOR SAMPLING										
		Nov. 30/61		FLOW INSUFFICIENT FOR SAMPLING										
		May 3/63		NO FLOW NOTED										
LO-58.9 WR	24" ϕ storm and Eighth Line S.P.S. relief sewer Eighth Line	May 3/63	-	26,000	2.2	652	-	-	2.3	0	-	-	-	-
LO-59.0 W	18" ϕ storm sewer Barringham Dr.	May 3/63	-	12,700	1.3	656	-	-	2.1	8	-	-	-	-
LO-59.1 D	Stream at Argyle Dr.	Sept. 20/60		NOT SAMPLED										
		Oct. 19/60		NOT SAMPLED										
		Nov. 30/61	-	6,400	2.6	626	-	-	2.6	6	-	-	-	-
		Aug. 22/62	-	11,000	2.0	610	-	-	2.9	3	-	-	-	-
		May 3/63	-	33,000	3.2	570	-	-	7.5	15	-	-	-	-
LO-59.1 W	15" ϕ storm sewer Brentwood Rd.	May 3/63		OUTLET SAMPLED REPRESENTED BY LO-59.1 D										
LO-59.6 D	Morrison Creek at Lake Shore Rd.	Sept. 20/60	-	540	2.6	230	-	-	2.	0	-	-	-	-
		Oct. 19/60	-	0	2.4	214	-	-	2.	-	-	-	-	-
		Nov. 30/60	-	800	4.1	400	-	-	3.1	2	-	-	-	-
		Aug. 22/62	-	6,000	1.0	336	-	-	4.0	5	-	-	-	-
		May 3/63	-	1,100	3.8	370	-	-	3.5	2	-	-	-	-

TABLE 7-7

OUTFALL TABULATION AND ANALYTICAL RESULTS

Sampling Point No.	Location	Date Examined	Coliforms per 100 ml. I.N.	Coliforms per 100 ml. M.F.	5-Day B.O.D.	Solids Total	Solids Susp.	Solids Diss.	Turbidity	Phenols (ppb)	Ether Solubles	pH	Chrome	Copper
LO-59.7 W	24" ϕ storm sewer - Ennisclare Dr.	May 3/63	-	243,000	13.	592	-	-	3.5	0	-	-	-	-
LO-59.7 W-2	12" ϕ storm sewer - Ennisclare Dr.	Sept.20/60		NOT SAMPLED										
		Oct. 19/60		NOT SAMPLED										
		Nov. 30/61	-	21,800	7.2	654	-	-	2.1	3	-	-	-	-
		Aug. 22/62	-	22	7.2	716	22	694	-	0	-	-	-	-
		May 3/63	-	22,700	14.	666	-	-	3.5	0	-	-	-	-
LO-59.8 W	18" ϕ storm sewer - Cox Dr.	May 3/63	-	1,500	1.7	564	-	-	1.5	0	-	-	-	-
LO-59.9 D	Watercourse - between Caulder Dr. and Trelawn Ave. at Lake Shore Rd.	Sept.20/60	-	740	2.8	624	-	-	4.	3	-	-	-	-
		Oct. 19/60	-	0	2.3	512	-	-	1.	-	-	-	-	-
		Nov. 30/61	-	1,800	5.1	630	-	-	3.3	8	-	-	-	-
		Aug. 22/62	-	7,600	1.3	704	-	-	1.5	3	-	-	-	-
		May 15/63	-	4,000	2.2	516	-	-	2.5	3	-	-	-	-
LO-60.0 D	Watercourse west of Ninth Line at Lake Shore Rd.	Sept.20/60		NOT SAMPLED										
		Oct. 19/60		NOT SAMPLED										
		Nov. 30/60	-	32,000	3.3	600	-	-	7.0	4	-	-	-	-
		Aug. 22/60	-	6,700	1.7	676	-	-	1.5	3	-	-	-	-
		May 15/63	-	0	2.9	590	-	-	1.8	0	-	-	-	-
LO-60.1 T1	60" ϕ outfall sewer - Ford Motor Co. of Canada	Sept.20/60	-	<5	2.8	274	44	230	-	6	-	-	-	-
		Dec. 1/60	-	30	1.8	190	12	178	-	2	-	-	-	-
		Nov. 30/61	-	<10	4.4	226	26	200	-	2	-	-	-	-
		Sept. 4/62	-	10	2.0	266	5	261	-	0	-	-	-	-
		May 15/63	-	157,000	3.3	214	-	-	9.5	0	-	-	-	-

LAKE ONTARIO

TABLE 8 - 1

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	Phenols (PPB)
LO-52.5	Cities Service Garden	May 14/63	-	470	-
		May 21/63	-	8	-
		June 11/63	-	380	-
LO-53.8	Bronte Creek Mouth	May. 14/63	-	680	-
		May 21/63	-	1,260	-
		June 11/63	-	480	-
LO-54.1	Bronte East	May 14/63	-	390	-
		May 21/63	-	-	-
		June 11/63	-	910	-
LO-54.7	Coronation Park	May 14/63	-	380	-
		May 21/63	-	-	-
		June 11/63	-	320	-
LO-55.8	Palermo (14 Mile)Creek Mouth	May 14/63	-	580	-
		May 21/63	-	-	-
		June 11/63	-	550	-
LO-56.6	Yellow buoy near mouth of Stream "B"	May 14/63	-	290	-
		May 21/63	-	-	-
		June 11/63	-	470	-
LO-57.8	Oakville Creek Mouth	May 14/63	-	160	-
		May 21/63	-	-	-
		June 11/63	-	1,670	-

LAKE ONTARIO

TABLE 8-2

Sampling Point No.	Location	Date Examined	Coliforms per 100 ML. I.N.	Coliforms per 100 ML. M.F.	Phenols (PPB)
LO-58.2	Second church tower (between foot of Dundas and Reynolds sts.)	May 14/63	-	100	-
		May 21/63	-	-	-
		June 11/63	-	250	-
LO-58.9	Eighth Line - Oakville	May 14/63	-	170	-
		May 21/63	-	-	-
		June 11/63	-	180	-
LO-59.6	Near mouth of Morrison Creek	May 14/63	-	180	-
		May 21/63	-	-	-
		June 11/63	-	88	-
LO-60.1	Near Ford Co. W.P.C.P. outfall	May 14/63	-	140	-
		May 21/63	-	-	-
		June 11/63	-	30	-
LO-60.9	Opposite small white round tower	May 14/63	-	32	-
		May 21/63	-	-	-
		June 11/63	-	250	-

SWIMMING AREAS

TABLE 9- I

Location	Date Examined	M. P. N. Total Coliform Organisms	M. P. N. E. Coli
Bronte West Beach (Lake Ontario)	May 14/62	150	0
	June/62	93	93
	July 16/62	15,000	2,300
	Aug. 8/62	2,300	23
Bronte East Beach (Lake Ontario)	May 14/62	23	23
	June/62	930	23
	July 16/62	1,500	39
	Aug. 8/62	46,000	2,300
Coronation Park (Lake Ontario)	May 14/62	43	3.6
	June/62	75	23
	July 16/62	230	23
	Aug. 8/62	24,000	24,000
Westdale Road (Lake Ontario)	May 14/62	23	0
	June/62	93	0
	July 16/62	750	23
	Aug. 8/62	24,000	24,000
Navy Street (Lake Ontario)	May 14/62	23	0
	June/62	750	93
	July 16/62	2,300	23
	Aug. 7/62	230	230
Reynolds Street (Lake Ontario)	May 14/62	23	3.6
	June/62	43,000	23,000
	July 16/62	750	230
	Aug. 7/62	7,500	3,900

TABLE 9-2

LOCATION	DATE EXAMINED	M. P. N. TOTAL COLIFORM ORGANISMS	E. COLI
EIGHTH LINE - OAKVILLE (LAKE ONTARIO)	MAY 14/62	930	6
	JUNE/62	230	23
	JULY 16/62	930	230
	AUG. 7/62	46,000	24,000
NINTH LINE - OAKVILLE (LAKE ONTARIO)	MAY 14/62	23	0
	JUNE/62	93	0
	JULY 16/62	750	39
	AUG. 7/62	21,000	2,300
BRONTE BRIDGE (BRONTE CREEK)	MAY 14/62	230	230
	JUNE/62	430	230
	JULY 16/62	23,000	2,300
	AUG. 8/62	9,300	2,300
KING PAVING (OAKVILLE CREEK)	MAY 14/62	9,300	9.0
	JUNE/62	93	93
	AUG. 8/62	43	23
OAKVILLE GOLF COURSE (OAKVILLE CREEK)	MAY 14/62	2,300	19
	JUNE/62	430	430
	AUG. 8/62	93	23
OMAGH CREEK (EAST OAKVILLE CREEK TRIBUTARY	MAY 14/62	93	21
	JUNE/62	430	430
	JULY 16/62	2,300	460
	AUG. 7/62	9,300	9,300

TABLE 9-3

LOCATION	DATE EXAMINED	M. P. N. TOTAL COLIFORM ORGANISMS	E. COLI
DRUMQUIN CREEK (EAST OAKVILLE CREEK)	MAY 14/62	43	43
	JUNE/62	2,300	930
	JULY 16/62	2,100	210
	AUG. 7/62	4,300	230
HENDERSON PARK (OAKVILLE CREEK)	MAY 14/62	43	0
	JUNE/62	9,300	9,300
	JULY 16/62	2,900	95
	AUG. 7/62	46,000	46,000

APPENDIX

EXPLANATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses performed generally included determinations of biochemical oxygen demand (BOD), solids or turbidity and phenolic equivalents, in addition to bacteriological (coliform) examinations.

Grab samples were collected: forty(40) ounce samples for sanitary chemical analysis and six (6) ounce samples for bacteriological examination were being used. All these laboratory tests were performed at the Ontario Water Resources Commission Laboratory in Toronto.

Biochemical Oxygen Demand (BOD)

The BOD test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in the sewage, sewage effluent, polluted waters or industrial wastes by aerobic biochemical action. The time and temperature used are 5 days and $20^{o}C$ respectively.

Solids

The analyses for solids include tests for total, suspended and dissolved solids. The former measures both the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature, whereas the dissolved solids are a measure of those solids in solution.

Land erosion, sewage and industrial wastes are significant sources of solids. Domestic sewage contains about 0.2 lbs. of suspended solids per capita per day. Solids in industrial wastes vary with the type of industry.

The effects of suspended solids in water are reflected in dif-

ficulties associated with water purification, deposition in streams, interference with navigation and injury to the habitat of fish.

Turbidity

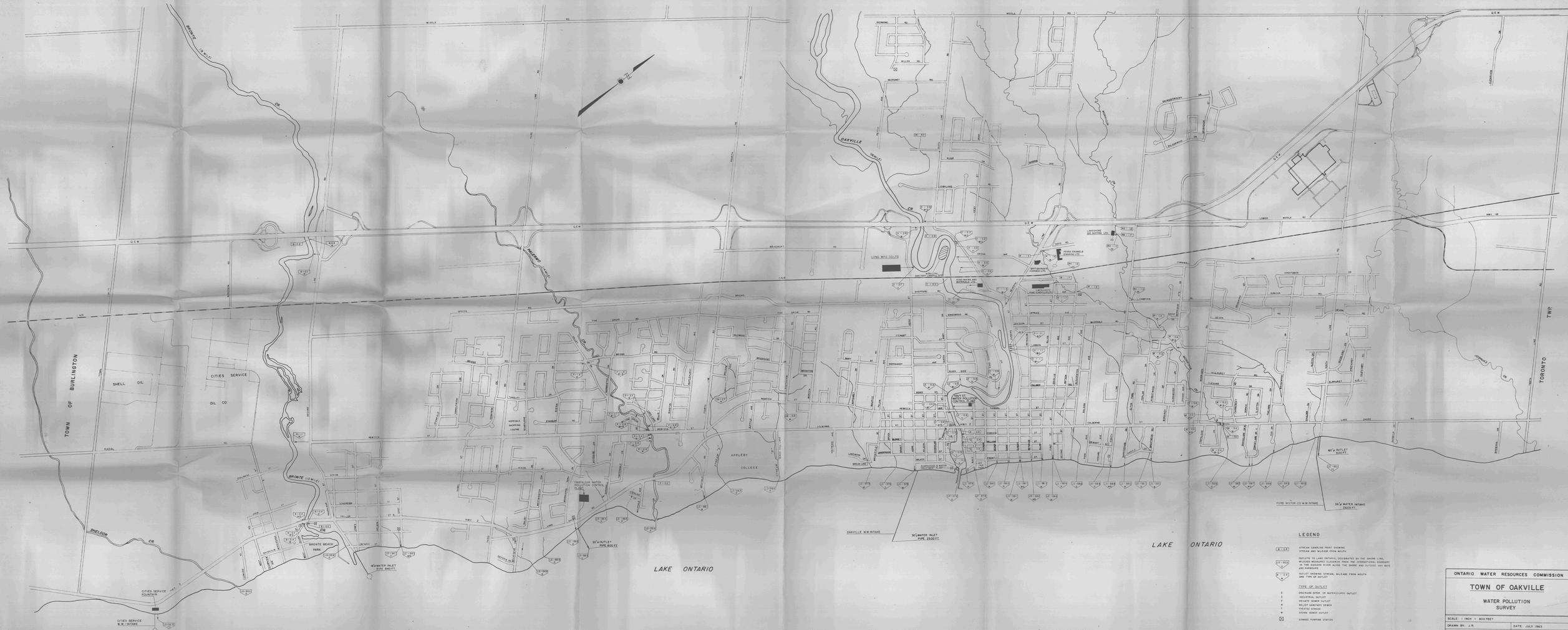
Turbidity is a measure of the fine suspended solids in water such as silt and finely divided organic matter. Where suspended solids values approach 20 parts per million or less, the results are usually reported as turbidity in silica units.

Bacteriological Examinations

The membrane filter technique was used to obtain a direct enumeration of coliform organisms. These organisms are normal inhabitants of the intestines of man and other warmblooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in other stream pollutants. The results are reported as M.F. coliform count per 100 millilitres.

Phenolic Compounds

Phenols and phenolic equivalents were measured by the Gibbs Method with modifications. Phenols react with chlorine to produce intensely aromatic compounds. These compounds, even when highly diluted, may give a taste and odour to the water which is variously described as medicinal, chemical or iodoform. Phenols taint fish and are toxic to fish, depending on the concentration. Normal water contains no phenolic compounds.



LEGEND

- B – 2.4 — STREAM SAMPLING POINT SHOWING STREAM AND MILEAGE FROM MOUTH
- O-1 (0.2) — OUTLETS TO LAKE ONTARIO, DESIGNATED BY THE SHORE LINE, AND OUTLETS TO THE NIAGARA RIVER FROM THE INTERNATIONAL BOUNDARY IN THE NIAGARA RIVER ALONG THE SHORE AND OUTSIDE ANY SLIPS AND HARBOURS
- O – 1.4 — OUTLET SHOWING STREAM, MILEAGE FROM MOUTH AND TYPE OF OUTLET

TYPE OF OUTLET

- D — DRAINAGE DITCH OR WATERCOURSE OUTLET
- I — INDUSTRIAL OUTLET
- P — PRIVATE SEWER OUTLET
- S — SANITARY OR COMBINED SEWER
- T — TREATED SEWAGE
- W — STORM SEWER OUTLET
- SEWAGE PUMPING STATION

ONTARIO WATER RESOURCES COMMISSION

TOWN OF OAKVILLE

WATER POLLUTION SURVEY

SCALE: 1 INCH = 800 FEET	
DRAWN BY: J.R.	DATE: JULY 1963
CHECKED BY:	DRAWING No. 63-188